



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,628	05/20/2005	Jes Broeng	034279-008	7915
21839	7590	09/28/2006	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			LEPISTO, RYAN A	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/535,628

Applicant(s)

BROENG ET AL.

Examiner

Ryan Lepisto

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 34-62 is/are pending in the application.
- 4a) Of the above claim(s) 34-42 and 57-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-56 and 62 is/are rejected.
- 7) ☒ Claim(s) 45 and 52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |                                                                                                                                                     |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                         | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/20/05, 8/25/05</u> | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Election/Restrictions***

**Claims 34-42 and 57-61** are withdrawn from further consideration pursuant to PCT Rule 13.1, as being drawn to a nonelected groups, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 21 August 2006.

Applicant's election with traverse is acknowledged. The traversal is on the ground(s) that the claims as amended have the limitation added that the inner cladding has a refractive index larger than the outer cladding's refractive index that is a special technical feature in common with the inventive concept. This is not found persuasive because the common concept among these groups is a photonic crystal fiber having voids in the inner cladding and the added limitation described above, which is known in the art. **Libori et al (US 2002/0061176 A1)** teaches such a fiber having holes in an inner cladding section (Fig. 17) and wherein the inner cladding has a refractive index larger than the outer cladding (Fig. 16). Since the common concept of the groups is known, the remaining special technical features are related to different technical problems and features resulting in lack of unity.

The requirement is still deemed proper and is therefore made **FINAL**.

### ***Information Disclosure Statement***

The information disclosure statement filed 25 August 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document;

Art Unit: 2883

each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the Foreign Patent Document WO 02/084350 referred to therein has not been considered because a copy was not provided.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 321, 322, 73, 1600, 1609, 1651, 1661, 1704, 1705, 180, 184, 185, 186, 187, 188, 189, 1800, 1801, 1802, 1803. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

Reference to Fig. 18c is missing from the "Brief Description of the Drawings" section.

It is suggested that the copy of the claims recited under the section "Specific aspects and embodiments" starting on page 24 since claims may be cancelled or amended. Appropriate correction is required.

### ***Claim Objections***

**Claim 52** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim states that the core has a refractive index that is smaller, equal to or larger than the refractive index of the outer cladding. Both the core and outer cladding will inherently have a refractive index because they are made of materials. The core index has to be smaller, equal to or larger just for the fact that it has a refractive index and therefore this claim does not limit the previous claim (43).

**Claim 45** recites the limitation "out cladding feature". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 43-45, 47-48, 51-56 and 62** are rejected under 35 U.S.C. 102(b) as being anticipated by **DiGiovanni et al (US 5,802,236)** (DiGiovanni). DiGiovanni teaches a spliceable optical fiber (Figs. 4 and 5) for transmission of light in at least a wavelength range of 1510-1600 nm (Fig. 6) comprising a solid glass core region (41, 51) with a diameter of 1.017  $\mu\text{m}$  (column 5 lines 50-51), a microstructured inner cladding region (42, 52) having either hole or void features (52) or collapsed voids (52) (column 5 lines 6-9, column 7 lines 29-30) having diameters ranging from 0.688  $\mu\text{m}$  to 0.833  $\mu\text{m}$  (column 5 lines 48-49) resulting in a cladding diameter of 3.226  $\mu\text{m}$  or larger (core 1.017  $\mu\text{m}$  + inner features 0.833  $\mu\text{m}$  + at least 2 rows of smaller inner features @ 0.688  $\mu\text{m}$  = at least 3.226  $\mu\text{m}$  to the outer solid glass cladding) and having a refractive index and an outer cladding (either holes/voids 53 or a solid glass ( $n = 1.45$ ) outer clad 43) (column 6

Art Unit: 2883

lines 7-10) having a refractive index smaller (by less than 2%) than the F-doped background material of the inner cladding (column 7 lines 25-27).

Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with sufficient specificity. When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching. See MPEP § 2131.02.

**Claims 43, 45-46, 48-55 and 62** are rejected under 35 U.S.C. 102(e) as being anticipated by **Libori et al (US 2002/0061176 A1)** (Libori). Libori teaches a splicable silica (paragraph 0163) optical fiber (Figs. 8, 16-19, 24-25, 27-28 and 39) for transmission of light in at least a range of 632 nm (paragraph 0163 to 1.55  $\mu\text{m}$  (paragraph 0171) that is guided within a core of the fiber (and therefore confined by a

Art Unit: 2883

cladding) comprising a core region (82, 161, 171, 181, 271, 283, 390) having a diameter of around 2  $\mu\text{m}$  (paragraphs 0163, 0165) or less, a microstructured inner cladding (81, 162, 170, 182, 272, 281, 391) surrounding the core and having thermally collapsible (paragraph 0211) holes or voids (83, 170, 281, 391) having a diameter and background material with a refractive index and an outer cladding (80, 163, 173, 183, 273, 282, 393) with some embodiments having thermally collapsible (paragraph 0211) holes or voids (81, 173, 282, 393) having a diameter larger than the inner cladding holes or voids (Figs. 8, 17, 19, 24-25, 28 and 39) and background material with a refractive index that is less than the refractive index of the inner cladding (paragraphs 0082, 0176). Libori further teaches the core being either having a refractive index equal to the inner cladding (paragraph 0054), less than the inner core (paragraphs 0082, 0169, 0175, 0204) or greater than the inner cladding (paragraphs 0082, 0204).

Prior art which teaches a range within, overlapping, or touching the claimed range anticipates if the prior art range discloses the claimed range with sufficient specificity. When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to



conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching. See MPEP § 2131.02.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All of the following references teach fibers having cladding holes and/or voids with cladding regions having different diameter holes/voids and/or different refractive index cladding regions: Hasegawa et al (US 2001/0024557 A1), Wang (US 6,418,258 B1), Bayart et al (US 2002/0131741 A1), Town (US 2003,0012535 A1), Broeng et al (US 6,539,155 B1), Russell et al (US 2003/0059185 A1), Hasegawa et al (US 6,571,045 B2), Broderick et al (US 6,577,801 B2), Broderick et al (US 2003/0161599 A1), Broeng et al (US 2003/0165313 A1), Bassett et al (US 2003/0190129 A1), Broeng et al (US 2004/0052484 A1), Town (US 6,738,550 B2),

Art Unit: 2883

Broeng et al (US 6,845,204 B1), Broeng et al (US 6,856,742 B2), Hasegawa et al (US 6,859,598 B2), Libori et al (US 2005/0069269 A1), Bjarklev et al (US 6,972,894 B2).

***Contact Information***

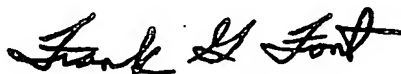
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-Th 7:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ryan Lepisto  
Art Unit 2883  
Date: 9/18/06



Frank Font  
Supervisory Patent Examiner  
Technology Center 2800